AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently Amended) An assay plate comprising: a flexible substrate having a flexible substrate surface; at least one raised pad extending from said flexible substrate surface and having a substantially planar sample receiving surface configured for holding a sample thereon for in-situ experimentation.

2. (Currently Amended) The assay plate of claim 1, wherein: a) said sample receiving surface has at least one sharp edge; b) said raised pad comprises at least one sidewall coupling said sample receiving surface to said substrate surface; c) said sample receiving surface shape is a circle, oval, square, rectangle, triangle, pentagon, hexagon, octagon, polygon, irregular, or any combination of the aforementioned; d) said sample receiving surface is sized to hold a predetermined volume of sample; e) said plate comprises an array of raised pads; f) said sample receiving surface has a diameter of between 10 μm and 1 cm; g) wherein a diameter of said sample receiving surface is larger than a height of a sidewall coupling said sample receiving surface to said substrate surface; h) said substrate surface is substantially planar and level; i) said raised pad and said substrate are integrally formed; j) said raised pad is made from metal, steel, titanium, silicon, polymer, plastic, glass, quartz, ceramic, or any combination of the aforementioned; k) said substrate is made from metal, steel, titanium, silicon, polymer, plastic, glass, quartz, ceramic, or any combination of the aforementioned; l) an area around said raised pad is etched from said substrate; m) wherein said raised pad and said substrate are etched, machined, injection molded or cast; n) said assay plate further comprises at least one cavity in said substrate adjacent said raised pad; o) said substrate surface is sloped; p) wherein said plate further comprises at least one hole through said substrate; or q) ~~said substrate is flexible; or r)~~ a roughness of said sample receiving surface is less than 5 μm.

3. (Original) The assay plate of claim 2(b), wherein an angle between said sidewall and said sample receiving surface is between 45 and 135 degrees.

4. (Original) The assay plate of claim 2(b), wherein an angle between said sidewall and said sample receiving surface is approximately 90 degrees.

5. (Original) The assay plate of claim 2(e), further comprising an array of 24, 96, 384, or 1536 raised pads.

6. (Original) The assay plate of claim 5, wherein: a) said sample receiving surface has a diameter of between 1 to 8.5 mm for an assay plate having 96 raised pads; b) said sample receiving surface has a diameter of between 0.5 to 4.2 mm for an assay plate having 384 raised pads; or c) said sample receiving surface has a diameter of between 0.05 to 2 mm for an assay plate having 1536 raised pads.

7. (Currently Amended) An assay plate comprising multiple raised pads extending from ~~an~~ a flexible substrate surface of a flexible substrate, where each of said raised pads has a substantially planar sample receiving surface configured for receiving a sample thereon for in-situ experimentation.

8. (Currently Amended) A method of using an assay plate, comprising: providing a flexible substrate with a raised pad extending from a flexible substrate surface thereof, where said raised pad has a substantially planar sample receiving surface configured for receiving a sample thereon; depositing a sample on said raised pad; performing an experiment using said sample on said raised pad.

9. (Original) The method of claim 8, further comprising drying said sample before said performing an experiment.

10. (Original) The method of claim 9, further comprising, after said drying, depositing a different sample on said raised pad and drying said different sample.

11. (Currently Amended) The method of claim 9, further ~~compromising~~ comprising, after said drying, redepositing said sample on said raised pad and redrying said sample.

12. (Original) The method of claim 8, wherein said depositing comprises depositing an amount of sample on said pad sufficient to form a raised droplet without substantially spilling off said sample receiving surface.

13. (Currently Amended) The method of claim 8, ~~wherein said forming comprises~~ further comprising etching a material to form said substrate and said raised pad.

14. (Currently Amended) The method of claim 8, ~~wherein said forming comprises~~ further comprising injection molding or casting said raised pad and said substrate.

15. (Original) The method of claim 8, further comprising overlaying said sample with a membrane or tissue.

16. (Currently Amended) A method of determining optimal medical device compositions or formulations, ~~compromising~~ comprising:

preparing an array of samples supported by a planar sample receiving surface of ~~the~~ an assay plate comprising a first lower member comprising a substrate having a substrate surface; ~~at least one~~ a plurality of raised pads extending from said substrate surface, ~~and~~ each raised pad having a substantially planar sample receiving surface configured for holding a sample thereon for *in situ* experimentation; and a second upper member comprising a reservoir plate having an array of openings, that when secured, are aligned with said planar sample receiving surface forming to form wells or reservoirs, each sample comprising an active component and at least one additional component, wherein each sample differs from at least one other sample with respect to at least one of:

(i) the identity of the active component,

(ii) the identity of the additional components,

(iii) the ratio of the active component to the additional component, or

(iv) the physical state of the active component;

securing a reservoir plate to the planar sample receiving surface, the reservoir plate having an array of holes that when secured are aligned with said planar sample receiving surface forming wells or reservoirs;

filling the array of reservoirs with a reservoir medium; and

determining rate of release of the active component from each sample in said array of samples into the reservoir medium to determine an optimal medical device formulation

17. (Previously Presented) The method of claim 16, wherein said reservoir plate is secured on top of said assay plate.

18. (Previously Presented) The method of claim 16, wherein the size or diameter of the holes or openings of the reservoir plate are smaller than the size or diameter of the planar receiving surface.

19. (Currently Amended) An assay plate comprising:

a flexible substrate having a flexible substrate surface;

at least one raised pad extending from said flexible substrate surface and having a ~~substantially~~ planar sample receiving surface configured for holding a sample thereon for *in vitro* use.

20. (Previously Presented) The assay plate of claim 19, further comprising an array of samples supported by the planar sample receiving surface.

21. (Previously Presented) The assay plate of claim 19, wherein said assay plate comprises a transdermal delivery device.